BIOL 2580

Division: Natural Science and Mathematics
Department: Biology
Course: BIOL 2580
Title: Introduction to Soil Science
Catalog Description:

Introduction to Soil Science is a course for sophomore-level students majoring in agriculture, botany, range science, forestry, wildlife biology, and restoration ecology. Concepts covered in this class include; fundamentals of soil formation, soil physical properties, classification, chemistry, microbiology, and fertility. Completion of CHEM 1110 or 1210 and MATH 1030 or above is recommended. This course may transfer to other institutions as required or transfer as elective credit for certain majors and minors.

General Education Requirements: Life Science
Semesters Offered: Spring
Credit/Time Requirement: Credit: 3; Lecture: 3; Lab: 0
Clock/Hour Requirements: 0
Offered for Non-Credit: No
Corequisites: BIOL 2585

Justification:

Soil science is an interdisciplinary science; it includes principles from chemistry, physics, and biology. This course is designed to transfer as an equivalent course to the introductory soil science courses taught at Utah State University, Weber State University, Southern Utah University, and Brigham Young University. This course is a required core class or elective for many majors programs offered at the aforementioned universities. This course may also partly fulfill the Life Science general education requirement.

Student Learning Outcomes:

As a result of taking this course, students will:

- be able to examine and understand the role and function of soil in our natural environment

- be able to apply information learned form physics, biology, and chemistry to understanding the interaction of the physical, chemical and biological components of soil

- appreciate the role of science in solving environmental and agricultural problems

- will have an enhanced appreciation of science and of learning as a lifelong pursuit.

Content:

Biology 2580 covers the following topics:

- Soil's place in the world around us
- Formation of soils from parent materials
- Soil classification
- Soil architecture and physical properties
- Soil water: Characteristics and behavior
- Soil and the hydrologic cycle
- Soil aeration and temperature
- Soil colloids: Their nature and practical significance
- Soil acidity, alkalinity, and salinity
- Organisms and ecology of the soil
- Soil organic matter
- Nitrogen and sulfur economy of soils
- Soil phosphorus, potassium, and micronutrients
- Soil erosion and its control

General Education Outcomes:

7) Apply scientific reasoning to a variety of contexts.

Students apply scientific reasoning in a number of situations related to soil science. They will be evaluated through exams and receive feedback on their performance.

Key Performance Indicators:

Students will be assessed in the folloiwng ways (percentages are approximate):

- Exams 80%
- Research assignments 20%

Representative Text and/or Supplies:

Elements of the Nature and Properties of Soils by Brady and Weil current edition. Macmillan

Optimum Class Size:

20

Maximum Class Size: 20

Signatures:

I hereby submit this course syllabus:

Luis Gordillo, PhD, Associate Professor

I hereby find this course consistent with the goals and resources of the Biology Department:

Allan Stevens, , Professor, Chair

I hereby find this course consistent with the goals and resources of the Natural Science and Mathematics Division:

Dan Black, EdD, Associate Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

Michelle Olsen, MLS, Campus Librarian (Richfield Campus)